Rouge Repair Kit

A Citizen's Guide to Restore and Protect the Rouge River

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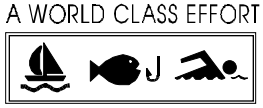


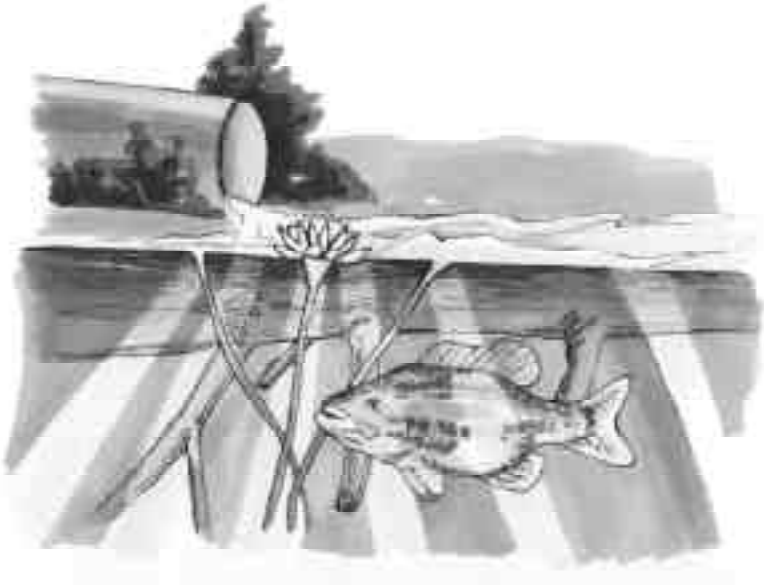
BRINGING OUR RIVER BACK TO LIFE

Produced by the Rouge River National Wet Weather Demonstration Project ,
which is funded, in part, by the United States Environmental Protection Agency grant #X995743-02.

Printed on recycled paper.

Where pollution is concerned . . .

every home in the
Rouge River Watershed is waterfront property



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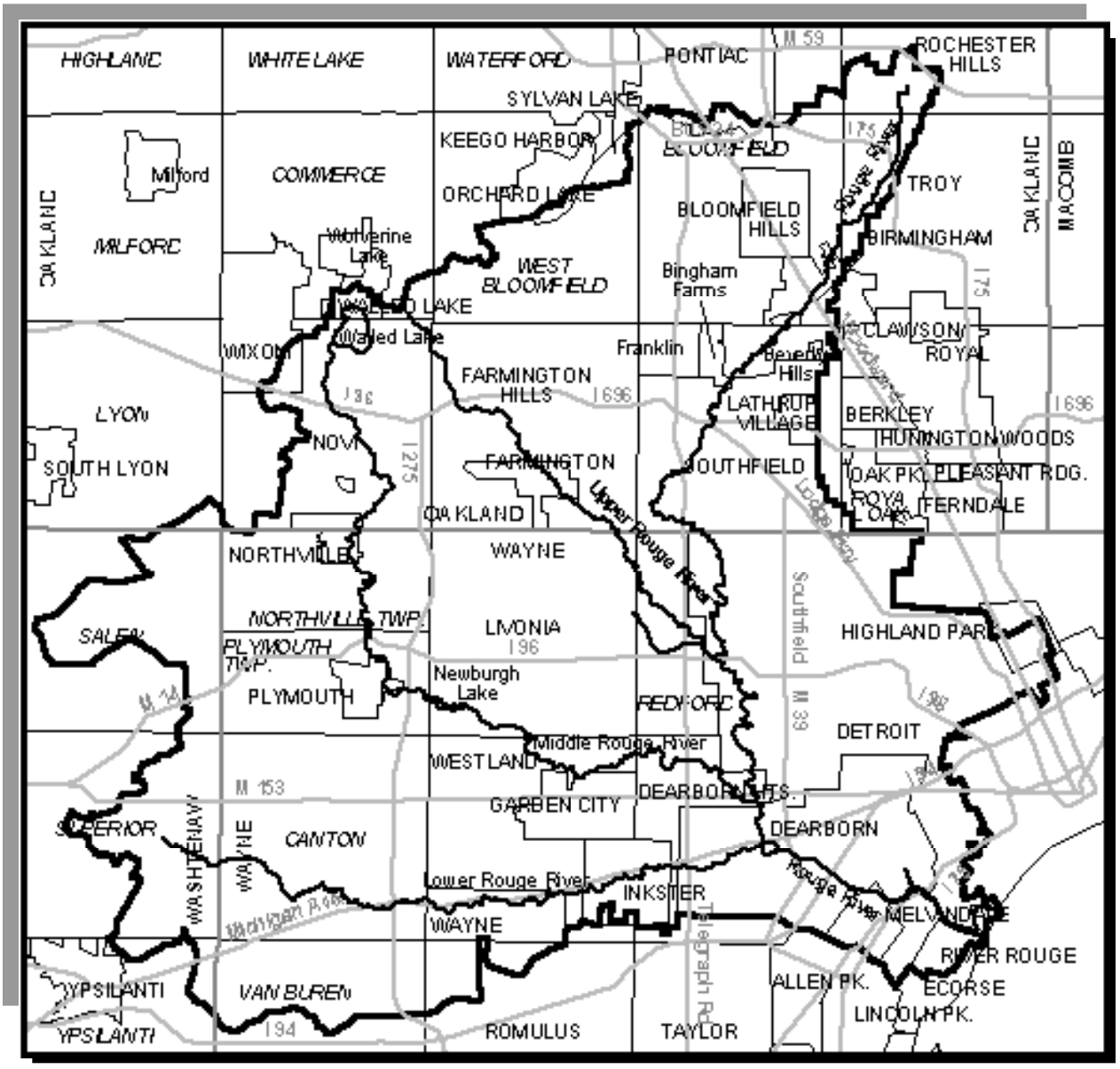
Make a Difference

Individual Actions Make a Difference

"I don't live next to the Rouge River, so how do I pollute the river?"

All people living and working in the area pictured on the map below can pollute the Rouge River. This is because all these individuals live or work in the Rouge River Watershed, which is the land area and waterways that drain into the Rouge River.



Isn't industry the big polluter to the Rouge?
No. That's a misconception that many people have. It's true that industry used to be a large polluter, but today industry causes only about 2% of pollution to the river.

How do individuals pollute the river?
Individuals are a major polluter to our area lakes and streams. This pollutant source is called polluted storm water runoff and is the water that runs over the ground during a rainstorm or snowmelt. This storm water picks up pollutants found in fertilizers, pesticides, oil and grease from cars and bacteria from pet wastes. This polluted storm water enters the river directly or through storm drains that lead directly to the river. Because storm water runoff is a major pollutant, a new campaign, *Storm Drains Aren't Garbage Cans*, has been initiated. One aspect of this campaign (and the reason for this guidebook) is to provide individuals with specific information on how their daily actions can help restore and protect the Rouge River.

Why Should I Help?
Government, industry and individuals need to work together in the restoration process. Individuals are partially responsible for the pollution to the river so we have to be partially responsible for the restoration. In addition, there are other benefits to a restored Rouge River, including:

- Canoeing and fishing along the river;
- Increased wildlife to the area;
- Improved aesthetics;
- Potential rise in property values; and
- A safe place for your children and grandchildren to discover and explore!

You are an important part of "Repairing The Rouge!"

Individuals and households can take voluntary actions to help prevent pollutants from entering the Rouge. This guidebook contains various examples of voluntary actions individuals can take from household hazardous waste management to composting yard waste to cautious use of lawn fertilizer

Take a minute.
In just sixty seconds, you can pick up a tip that can help the Rouge River.

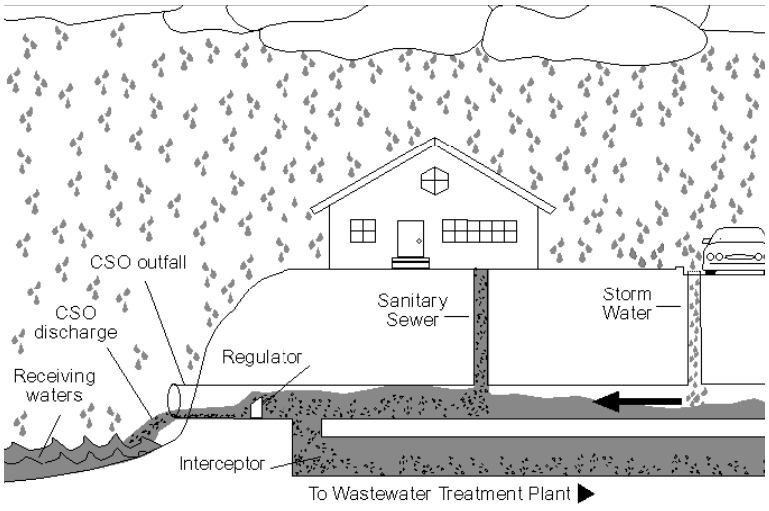
Make a change.
Take an idea from the Repair Kit, make a change, then repeat the cycle. You can improve water quality in the Rouge one step at a time, just as long as you keep moving forward.

Spread the word . . . . . .
at home, at work, in school. Plant an idea with a friend and watch your efforts grow.

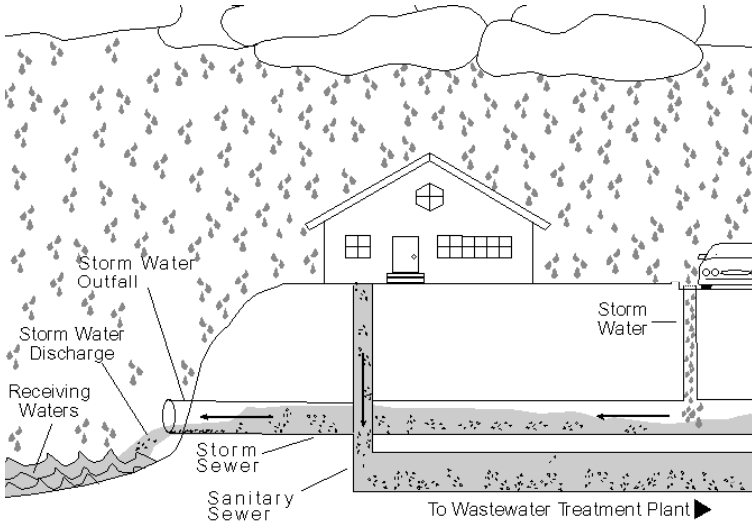
Do you know where your water goes?

Before getting into what actions you can take to restore the river, it is important to understand where the water goes when it leaves your house and property. For some people this may seem like an easy question, but in the Rouge River Watershed your water goes to various places depending in which community you live. Following is a summary of different scenarios:

Combined Sewer System



Separated Sewer System



Combined sewer system

Some communities collect both storm water and sanitary wastewater in the same sewer. These are called "combined sewers". Sometimes, when it rains, combined sewers do not have enough capacity to carry all the storm water and wastewater to the treatment plant. In these situations, the combined wastewater overflows untreated into a body of water, creating a combined sewer overflow (CSO). In some cases, the water is treated to kill the bacteria found in the sewage, but the other materials (fertilizers, pesticides, motor oil, etc.) will enter the river untreated. Therefore, any water that enters the sewer has the potential to discharge into the river.

Separated sewer system

Some communities collect storm water and sanitary wastewater in different sewers. These are called "separated sewers". Therefore, any polluted water entering your storm drain will reach the river without any treatment.

Septic system with no storm drains

Some households collect wastewater and it enters into the septic tank where it eventually enters the drainfield and allows the soil to treat the waste water. Water running off pavement and lawns outside enters ditches which flow into tributaries of the Rouge River.

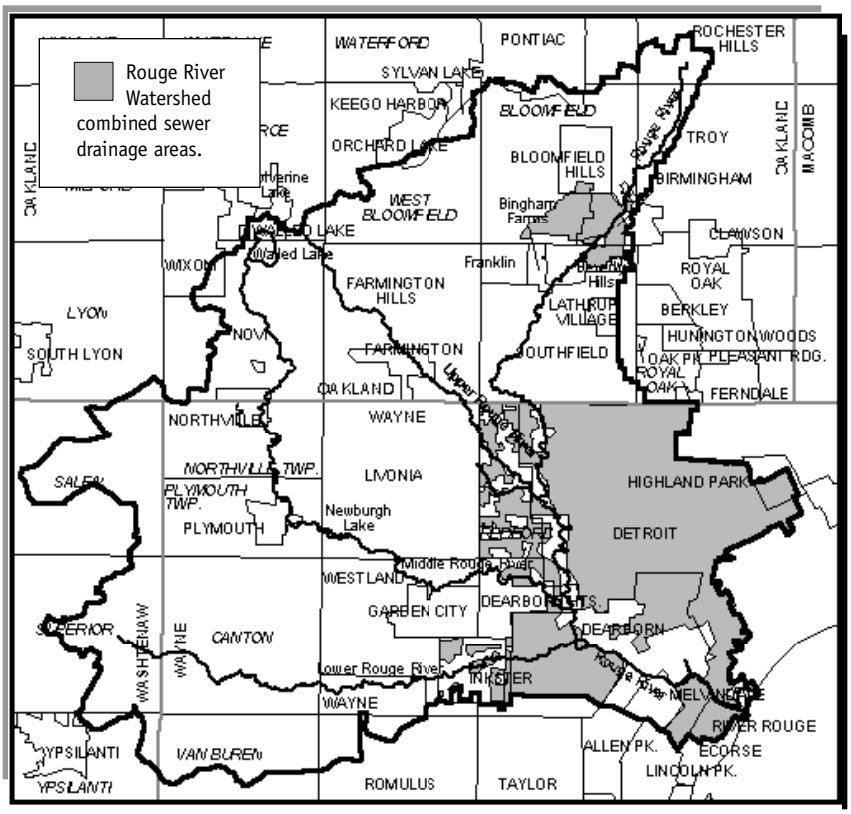
Septic system (continued)
Therefore, any pollutant that is improperly disposed to your septic system or outside could contaminate both the soil and the river. For further description and tips for septic system maintenance, see septic system maintenance section in this guidebook.

Riparian owners

Property adjacent to the Rouge River or its tributaries is in need of special attention. Not only can storm water enter the river from the above mentioned sewer systems, but it can also enter the river directly as overland flow. Therefore, any chemicals, fertilizers, etc. that is put on your lawn or garden has the potential to runoff directly into the river.

What system do you have?

If you are not sure if you live in a combined system or a separated system, look at the map below. The combined sewer system areas are shaded.



CSO Drainage Area after Phase 1.

Healthy Lawn and Garden Practices

This section has been prepared in cooperation with SOCRRA (Southeastern Oakland County Resource Recovery Authority). The practices recommended have been identified in cooperation with Oakland County MSU Extension, Wayne County MSU Extension, and the Metropolitan Detroit Landscape Association.

When soils and plants are healthy, plants naturally resist disease and pests — allowing gardeners and lawnowners to reduce (or avoid) the use of pesticides and quick-release fertilizers. Healthy lawn and garden practices often save homeowners time and effort in the long-run and promote a beautiful landscape.

Healthy lawn and garden principles were developed by professionals familiar with excellent horticulture practices. . . and with knowledge of Southeast Michigan soils and growing conditions. The principles apply to all types of plants. More specific practices have been identified for lawns, gardens, trees, and other landscape areas. Lawn care tips and gardening tips are presented in this section.

Healthy Lawn and Garden Principles

Principle #1	Build fertile soils with organic matter.
Principle #2	Select plants suited for the site and climate conditions — expand your understanding of "Right Plant in the Right Place."
Principle #3	Plant for diversity — to encourage beneficial insets and pest resistance.
Principle #4	Provide nutrients and water to sustain healthy plants.
Principle #5	Recycle yard clippings on site.
Principle #6	Minimize the use of insecticides, herbicides, and other pesticides. Practice Integrated Pest Management (IPM).

Waste-Wise Tips for a Healthy Lawn

(excerpts form SOCRRA fact sheet)

Mowing the Lawn

Feed your lawn . . . with grass clippings! Clippings are composed of 85% water. Short clips quickly decompose, adding valuable nutrients to the soil. With grass recycling, fertilizers can be significantly reduced — by 30% - 40% or more.

Grass clippings do not cause thatch. Thatch is the layer of living and dead roots and stems growing between the green layer and the soil. Troublesome thatch is typically caused by improper use of lawn chemicals, compacted soil, excessive watering and other factors.

Mowing Tips

- Set the mower blade at the highest setting, leaving grass blades 3" tall, if possible. Tall grass encourages deep roots and also shades out crabgrass and low-growing weeds.
- Remove no more than the top 1/3 of the grass blade.
- Let short grass blades fall back onto the lawn.
- Use a sharp mower blade. A dull blade will tear grass and provide an entry port for diseases. Sharpen the blade at least twice a year.
- Mow when the grass is dry in order to avoid a wet, sticky mess!
- Keep the mower deck clean. Wash the underside of the mower after each use. A clogged deck won't mulch or discharge well.

Feed your lawn . . . with grass clippings! Short clips quickly decompose, adding valuable nutrients in the soil.

If you have extra clippings . . .

- Mix grass clippings with leaves and soil to make a backyard compost pile (see composting section).
- Use clippings as a garden mulch (see mulching section).

Options for mowers include . . .

1. retrofitting your present mower with a mulching blade
2. using an older mower by raising the mower blade and cutting frequently; or
3. purchasing a new mulching mower which cuts and recuts grass.

Lawn Watering

Home lawns in Michigan require 0.5 to 1.5 inches of water per week, applied in small amounts throughout the week. The depth of grass roots is influenced primarily by soil temperature and the length of the blades — not by the amount of water.

Water lightly and frequently — every day, if possible. At 15-20 minute daily watering during dry weather is usually sufficient. Grass roots are short (often less than 4 inches long) and can't use excess water. Light, frequent watering also reduces the stress to the grass plant which, in turn, reduces the potential for disease and insect damage. Light watering keeps beneficial microorganisms active on the soil surface.

NOTE: If daily watering is not possible or practical for you, every-other-day schedule is recommended by local horticulture specialists. Also remember to water trees deeply. The watering volume will need to be adjusted if tree roots are under the lawn.

Lawn Fertilization

Overuse of fertilizers can promote excessive growth of the lawn — creating extra waste. Excessive nutrients may move past the root zone and reach rivers and lakes. Threats are greater if "quick release" chemical fertilizers are used.

Select a slow-release fertilizer to promote steady, uniform growth — and to protect water quality.

Select a **s**low-release fertilizer to promote steady, uniform growth — and to protect water quality. Slow-release options include organic fertilizers, timed-release coated products, and products with water-insoluble nitrogen (marked "W.I.N."). To be considered slow-release, Michigan State University specialists suggest that 25% of the nitrogen should be WIN. SOCRRA adds the recommendation to search for products where water insoluble nitrogen comprises 50% or more of the nitrogen — providing a very high level of benefits and water quality protection.

Fertilize in September or October — to promote root growth rather than top growth. Some types of grasses need to a second fertilization (in late spring, at Memorial Day), while others need three or perhaps four applications of nitrogen.

To determine the type and amount of nitrogen fertilizer needed throughout the season, check the type of grass you have, shade/sun conditions, and the age of the lawn. Then contact either the Oakland County or Wayne County MSU Extension office and ask for the standard recommendations based on your site conditions.

Be sure to say that you wish to have a healthy lawn with minimal fertilizer. If you leave the clippings on the lawn as a regular practice, you can reduce the number of fertilizer applications by at least one — since the clippings are already returning nitrogen to the soil.

No more than one pound of nitrogen should be applied to 1000 square feet of lawn (this is standard application rates). Measure the size of the lawn area carefully, and determine the total quantity of fertilizer needed. Carefully apply the fertilizer so it covers the entire area. Sweep up any fertilizer that reaches the street or sidewalk—put sweepings back on the lawn.

Sweep up any fertilizer that reaches the street or sidewalk — putting sweepings back on the lawn.

Lawn Care Services

True or False? There's nothing I can do about my lawn because I hired a lawn care service. False! Since you hired them, you have a right to know what is being put on your lawn.

Before you select a lawn service, determine the services that you wish to purchase. Lawn companies fertilize, manage weeds and damaging insects, aerate, mow and maintain small trees. Many firms offer 5 or 6 "regular" applications of fertilizer and/or pesticide which may not be needed on your lawn. To minimize herbicides on the lawn, consider spot treatment for individual weeds rather than blanket applications which may damage the grass.

Issues to raise when hiring a professional lawn care service:

- Ask for a lawn inspection and free estimate. Work with a company which establishes costs based on specific lawn conditions rather than costs based on the "average" lawn.
- When comparing quotes, obtain a thorough explanation of what the service can and cannot do. Find out what treatments are proposed to be included, when they will be applied, and what results you can expect.

  Remember . . . the lowest price isn't necessarily the best price.
- Before you enter into a contract with a landscape or lawn service, find out how you can quit the contract or change services if necessary in the future.
- Search of a lawn care company familiar with slow-release fertilizers. Request a soil nutrient test so that the type and quantity of fertilizer matches the lawn conditions.
- Make sure the company is licensed for the application of lawn care products as required by state law. To check on violations, telephone the Michigan Department of Agriculture at (517) 373-1087 and make a request under the FOIA, Freedom of Information Act.
- What is their service policy? How quickly will they respond to a potential problem? Even the best lawns may develop problems. Beware of companies that offer 100% control of weeds and pests.

There are many issues to raise when hiring a lawn service company, such as the types and amounts of fertilizers and pesticides they are planning on using on your lawn.

Healthy Garden Tips — Controlling Pests in the Yard

Sections excerpted from SOCRRA bulletin titled "A Pesticide Guide to Integrated Pest Management for the Home Gardener."

Pest-resistant species of trees and shrubs which are hardy in Southeast Michigan should be selected — to avoid the need for toxic pesticides.

Always strive to minimize or eliminate the use of insecticides, herbicides or other pesticides. Pesticides contain toxic materials that can enter storm water runoff or be discharged to the air—eventually being deposited in the Great Lakes or other water bodies. In addition, pesticides are a safety concern for children, adults, and pets.

The specific environmental and health effects of pesticide chemicals are summarized in EXTOXNET, a pesticide reference available through MSU Extension or through SOCRRA community hardware stores. Some people say that certain pesticides are "safe." This is rarely the case. Visit the EXTOXNET web site at http://ace.orst.edu/info/extoxnet.

For a logical approach to pest control, follow the steps in an Integrated Pest Management (IPM) process. These steps include the following:

Step 1: Select resistent plants: Choose pest (insect and disease) resistant plant varieties. This includes grass, tree, shrub, flower and food crops that are derived from disease-free stocks and are pest resistent.

Step 2: Use good gardening practices: These practices include maintaining healthy soil, providing adequate drainage and good air circulation, providing proper moisture, choosing the right plant for the right place and keeping the garden free of pest harboring debris. A healthy, vigorous plant is less likely to be affected by diseases and insects.

Step 3: Establish threshold levels: Decide what level of weed, insect, or disease presence or damage is tolerable. Setting pest tolerance too low may require excessive or unnecessary treatment which can result in environmental damage.

Step 4: Monitor lawn and garden to determine pest levels and possible problems. Always identify the insect, weed or disease causing the problem before initiating treatment. When a pest is accurately identified in damaging numbers (above threshold), select a control which is targeted to the specific pest, if possible.

Step 5: Identify the problem. Always identify the insect, weed, or disease causing the problem before initiating treatment. In case of insects, remember that only a very small number are actually pests. When a pest is identified above the threshold, select a control which is targeted to the specific pest, if possible. Beneficial organisms may be impacted by the control, so proceed with caution. Start with the least toxic method. Advance to a more toxic method only if the first does not work. Be aware that many biological and chemical controls are effective only during a certain stage of a pest's life cycle.

For additional tips about storage and use of household hazardous products, and for household hazardous waste disposal guidelines, see the household hazardous waste section of this booklet.

Composting — Yard Waste to Yard Riches

Through the natural process of composting, leaves and grass clippings from your yard can be transformed into soil-enriching substance called compost. Compost is known as gardener's gold because it improves soil structure, retains water, encourages root growth, aerates soil, and releases nutrients slowly.

Compost can be used in the garden, containers, as mulch around shrubs and trees, or as a top dressing for lawns. Combefore planting. During the growing season, use compost as a top dressing to give your plants a healthy "snack".

If done in the right proportions, the compost pile should not smell. If there is an odor problem, add more carbon and turn the pile.

Materials for Composting

To avoid nuisances and odors, select the materials for your i˘mpost pile with care. Check with your Department of Public Works for specific home composting regulations.

Building the Compost Pile

To build the pile, follow these steps:

Step 1: Start with a layer of organic materials such as shredded leaves, grass, or other garden debris. *For an ideal composting mix, use twice as much carbon material (leaves) as nitrogen material (grass clippings)*

Step 2: Water the layer until it is as moist as a wrung-out sponge.

Step 3: Add 2-3 inches of soil or compost (to provide microorganisms).

Step 4: If possible, mix all materials together as you build the pile.

Step 5: Continue the process of adding organic materials, soil and water until the bin is filled.

Turning the Pile

Turning and mixing the compost pile with a pitchfork or compost turner adds oxygen and accelerates the rate of decomposition. The pile may be turned once a week, once a month, several times a year, or not at all. If the pile is turned over and mixed from time to time and kept moist, finished compost is usually available in 6-9 months.

Materials for Composting

To avoid nuisances and odors, select the materials for your compost pile with care. Check with your Department of Public Works for specific home composting regulations.

Yes!	No!
Nitrogen Sources:	Dairy products
Grass clippings	Oils and fats
Fruit and vegetable peelings	Meat, fish, bones
Lettuce Leaves	Pet manure, Cat litter
Coffee grounds, filters and tea bags	Cooked food
Young weeds (without seeds)	Diseased plants
Carbon Sources:	Black walnut leaves
Leaves--shredded, if possible	Bread
Straw	Weeds with seeds
Paper	Invasive weeds
Sawdust	
Corn stalks	

Mulch Is Marvelous

Shredded leaves, grass clippings, compost and other yard materials can be recycled as mulch. Mulching around flowers, vegetables, bushes and trees helps to support healthy plant growth.

Why mulch?

Mulching helps soils and plants by resisting weeds and retaining moisture. The use of mulch saves the most valuable commodity —your time. Mulched gardens are healthier, more weed-free and more drought-resistant than unmulched gardens, so you'll spend less time watering, weeding, and fighting pests.

Types of Mulch

Shredded leaves: Chop or shred leaves with a mower or shredder since whole leaves may mat and prevent water from reaching the soil. Leaves help cool soil during the summer and warm soil in the winter.

Grass clippings: Spread dry clippings in a one-inch layer under bushes or around plants. Never use clippings with a herbicide residue. In a vegetable garden, try laying grass clippings on top of wet newspaper to help resist weeds. Both the newspaper and clippings will eventually decompose and help build the soil.

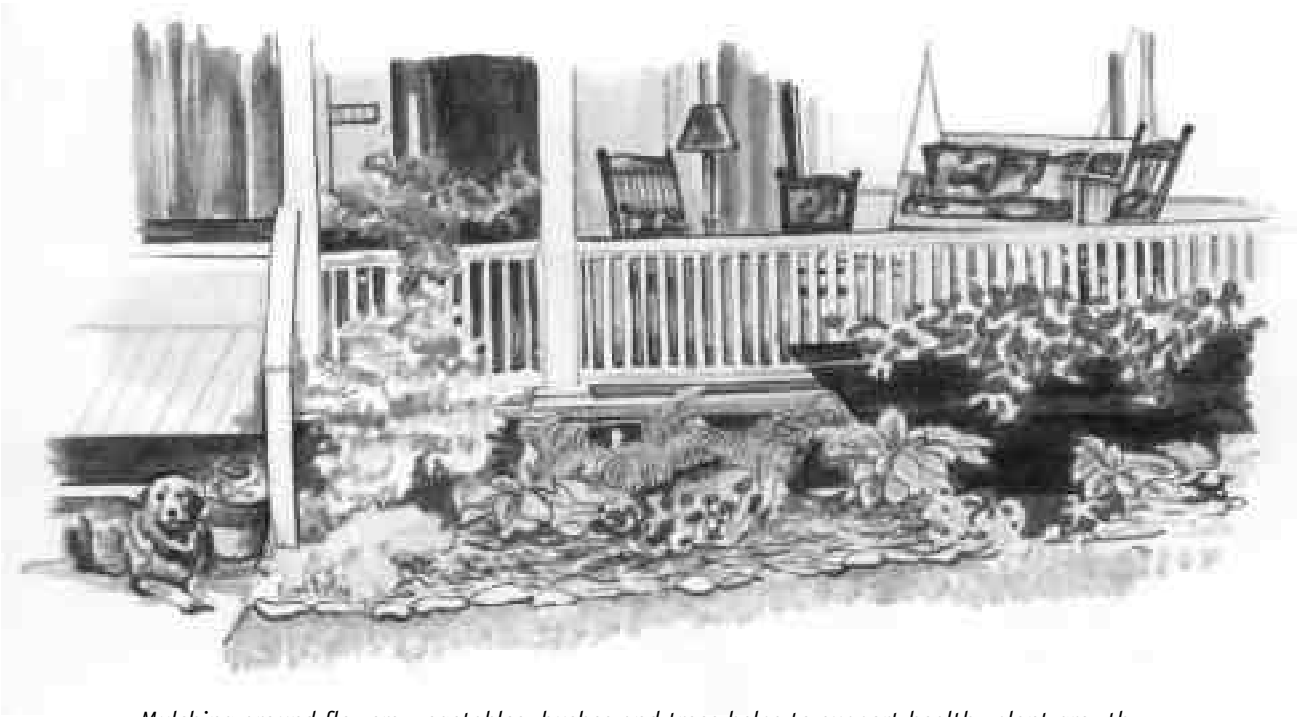
Pine needles: Use pine needles around acid-loving plants such as rhododendrons and azaleas. The acid in pine-needle mulch can be moderated, if desired, by a light broadcasting of ground limestone every few years. Pine needles help form the same rich mat of humus that nourishes trees in the forest.

Compost: Compost can be placed around plants as a mulch, especially to hold moisture and enrich soil. (See composting section).

Shredded bark or wood chips: Spread in a thick layer around shrubs and trees to be effective weed control.

Mulching tips

- Mulches should not be placed over the crown of vegetables and flowers where they may encourage rotting. Similarly, mulches should not be placed tight against stems of plants.
- In the early spring, it is a good gardening practice to pull organic mulches back away from plants and let the soil dry out.



Mulching around flowers, vegetables, bushes and trees helps to support healthy plant growth.

Landscape Design and Maintenance

Runoff from home lawns and gardens flows into storm sewers, combined storm-sanitary sewers or into roadside ditches connected to the Rouge River. Runoff results from rainstorms and from lawn and garden watering practices. Pollutant sources include: fertilizer, pesticides, soil eroding from bare areas, pet wastes, and oil or grease that may have leaked or spilled onto the ground.

The way in which home landscapes are designed and maintained directly affects runoff and Rouge River water quality. Landscapes can be designed to retain water on-site, encourage infiltration, and even to "treat" some pollutants through small ponds and wetlands. Trees, shrubs, groundcovers, and other plantings can be selected with water quality protection in mind.

Suggestions for environmental, low-maintenance landscaping are highlighted below.

Reduce paved surfaces

Paved surfaces block the natural infiltration of storm water into the ground. Paved surfaces increase both the volume and velocity of runoff from the site, increasing the potential for pollutants to reach sewers, drainageways, and water bodies. When paved surfaces are minimized, storm water can more readily infiltrate into the ground.

Paved surfaces are easiest to reduce when new construction is planned. When installing a new driveway or sidewalk, consider a gravel bed, bricks and flagstones, bricks or interlocking pavers, crushed shells or stone and bark chips. These porous surfaces encourage some infiltration of runoff.

Consider the design and layout of roads and pathways. Roads and pathways can also be designed with small berms, terraces or holding areas to trap storm water — especially on slopes. Designs with curves and designs which reduce standard roadway widths offer water quality benefits.

Preserve swales and low-lying areas on-site

When designing the home landscape, preserve low-lying areas such as wetlands and swales. These low-lying areas retain storm water, provide water quality filtration and may allow for some infiltration to replenish groundwater supplies. Research in Spokane, Washington, as well as Florida (among other locations) has documented the storm water quality benefits from swales and low-lying areas.

Small on-site ponds and wetlands provide significant water quality filtration and enhancement for surrounding creeks.

Berms and swales may also be designed into the landscape in order to slowdown the runoff. Berms and swales may be part of the site plan for an individual home or integrated into the design of an entire multi-unite complex or subdivision development. Berms should be positioned to allow water to run toward the swales and away from the paved surfaces.

Connect roof downspouts and other pipes into swales or vegetated areas to reduce runoff volumes.

Design and retain small ponds, wetlands, and "rain gardens"

The value of small on-site ponds for water quality filtration and enhancement is significant. Ponds and on-site drainageways can be designed to trap runoff and to allow sediment to filter out of the water. Small ponds may function as water quality "kidneys" during small storms, with an overflow drainageway for large storms.

Rain gardens can be planned and integrated into both new and existing developments. A rain garden combines shrubs, grasses, trees and plants in depressions (about 6 inches deep) that allow water to pool for only a few days after a rain. The plants in the rain garden absorb the water and remove nutrients for a very low cost.

Rain gardens have been found to work in varying soils and landscape conditions in the Washington D.C. area — including sites with heavy Virginia clay and sites with sandy soils in neighboring Prince George's County, Maryland.

Plant and preserve diverse trees, shrubs, and groundcovers

Trees and shrubs on residential sites provide substantial environmental and water quality benefits. The tree canopy (overarching branches and leaves) buffers the impact of rainstorms, reduces soil erosion, encourage natural infiltration and helps sustain micro-climates which in turn allow native grasses and other groundcovers to survive. Tall grasses and other groundcovers hold soil in place and provide an alternative to a traditional high-maintenance or moderate-maintenance lawn.

As a landscaping concept, consider the addition of island beds (with trees, shrubs or flowers) in areas dominated by a light-maintenance or moderate maintenance lawn. The island beds provide a place to hide yard trimmings and can help trap and hold runoff.

Pest-resistant species of trees and shrubs which are hardy in Southeast Michigan should be selected—to avoid the need for toxic pesticides. Trees, shrubs, and groundcovers should be carefully selected to fit to the soil type, climate condition and the site drainage conditions.

Planting diverse trees, shrubs, and grasses leads to enhanced natural pest resistance. The pests for one species may be balanced by beneficial insects attracted to another species on the site. When planning for diversity, consider the type of plant (e.g. trees vs. shrubs); the species within the plant classification; vertical stratification and horizontal coverage.

In order to retain the natural and beneficial diversity of your landscape, remove exotic and invasive plants. Purple Loosestrife is a particular concern in the Rouge River Watershed. The plant pushes out native vegetation found in wetlands, destroying the natural diversity and wildlife habitat. For information on the identification and removal of invasive species, contact the Environmental Assistance Center, Michigan Department of Environmental Quality at (517) 373-9400.

Replace large areas of high-maintenance plants with low-maintenance plants and mulches.

Some landscapes consume large quantities of water, time, fertilizers and other resources. Research at Texas A&M University in Dallas shows that selected reduced imput and low-maintenance plants reduce nutrient concentrations in runoff.

Practical tips for the do-it-yourself gardener are as follows:

Amend soil with mulch compost as possible. A 2-3" layer first placed on top and then mixed into the soil will help retain water and nutrients.

Select plants which are resource efficient — requiring minimal levels of fertilizer, pesticides and water. Both native and non-native species may offer these advantages. Mulch the landscape with an organic or natural mulch — such as aged shredded bark; shredded leaves; grass clippings; or a mixture of these. Mulch will protect the soil, hold in water and will gradually contribute nutrients to the soil.

Many practices which help protect water quality also enhance wildlife habitat.

Establish native grass and herbaceous flowing plants in a meadow-like setting as an excellent alternative to high-maintenance landscapes. Native grass plants have low nutrient requirements but can be effective in nutrient uptake. When planning a native landscape, consider the length of time to establish he landscape and the long-term maintenance savings. Check with your municipality concerning height requirements for grasses and weeds. Try a small area before re-landscaping your entire yard.

Group plants according to similar growing and resource requirements, matching them with the existing site conditions. "Right plant . . . right place" is an important healthy garden principle.

Landscaping for wildlife.

Healthy wildlife and clean water are interrelated. Many practices which help protect water quality also enhance wildlife habitat. Habitats which encourage birds, bees, butterflies, and microorganisms help to sustain natural systems with natural pollutant reduction and soil conservation functions. Landscapes which benefit wildlife also help improve watershed water retention.

To encourage wildlife, provide the following:

Food — every species of wildlife has its own requirements.

Water — ponds or puddles will work.

Shelter — or cover.

Space — every species has its own territorial needs.

Vegetative edges — which encourage diversity.

Whenever possible, select pest-resistent native plants which will be enjoyed by diverse wildlife.

Buffer Zones

Retain or create vegetative buffer zones adjacent to creeks and drainageways which connect to the Rouge River.

If you live along a creek, major drainageway or branch of the Rouge River, you are a "riparian property owner." Your planning, planting and landscape maintenance activities have a direct impact on the Rouge River.

The two most important steps you can take are to (1) plant or retain a natural vegetative buffer adjacent to the waterway; and (2) prevent soil erosion along the bank of the river or creek.

A vegetative buffer includes a variety of plantings (preferably, native, pest-resistent species) which hold soil in place, buffer the impact of runoff and help shade and protect the waterway itself. Shore plants also shelter and feed all life stages of birds and small animals. Vegetated buffer areas should be as wide as possible, since wider buffers provide a greater opportunity for plants to slow and filter storm water.

Replanting disturbed vegetation along stream banks is an essential management practice. For more information about choices for plants, refer to the Stream Restoration Guidebook, Natural Resources Conservation Service (NRCS) available at county soil conservation district offices. For guidelines on how to prevent soil erosion when replacing plants, contact MSU Extension in your county

Retain or create vegetative buffer

zones adjacent to creeks to protect the river from polluted surface runoff and prevent bank erosion.

For help with questions on: trees, lawns, flowers, fruit, pests, shrubs and vegetables, call the **Garden Hotline.**

Oakland County
(810) 858-0902
May - October
Monday - Friday
9:00 am - Noon & 1:00-4:00 p.m.

November - April
Hours vary please call

Wayne County
(313) 833-3268
May - October
Monday - Friday
9:00 am - 1:00 p.m.

November - April
Hours vary please call

The Problem of Erosion

Erosion is the wearing away of land surface by wind or water. Erosion results in cloudy, muddy water entering the Rouge River. The "mud" in the muddy water is sediments, a mix of soil components: particles of sand, silt and clay, that have been dislodged from the ground and carried away by running water and wind. Erosion in a river system creates numerous problems for aquatic life:

- When sediments enter the river, sand and clay settle to the bottom, and eventually, form a thick layer, which covers the living space for many bottom- dwelling plants and animals.
- In heavy concentrations, sediments can block sunlight for aquatic plants, clog the gills of fish, and reduce the amount of dissolved oxygen in the water.
- While soil erosion and sedimentation are naturally occurring and caused by rain and wind, human activities such as intensive agricultural production and construction and other development activities, accelerate the soil erosion sedimentation process.

Erosion Control Tips:

- Place gravel or hardy vegetation under roof eaves. Add downspout attachments to slow and spread the draining water.
- When landscaping or remodeling, cover small mounds of dirt with a tarp so that wind and rain don't carry the sediments to nearby water bodies.
- Stabilize your shoreline by following the tips found in the landscaping section.
- Generally, it is important to limit the extent and duration of land disturbance and protect surfaces once they are exposed. This can be accomplished through surface stabilization or sediment barriers.

To prevent erosion from your yard, cover dirt piles with tarps or seed bare ground.

Surface Stabilization Methods

Earth surface stabilization reduces erosion from both wind and water. Covering bare ground prevents water runoff and rain from eroding soil and carrying sediment into the Rouge. Following are various methods for surface stabilization:

Mulching: A protective blanket of straw or other plant residue, gravel or synthetic material applied to the soil surface will minimize runoff, encourage vegetative growth, reduce evaporation, insulate the soil and suppress weed growth. Mulch provides immediate protection and organic mulch such as straw, wood chips and shredded bark are highly effective. Other mulches include: grass clippings, newsprint and compost. Netting may be needed to hold mulch in place on slopes.

Temporary Seeding: Planting rapid-growing annual grasses or small grains can be used as temporary stabilization for erosion control on disturbed soils that will not be finished for more than approximately one month.

Sodding: Permanent stabilization of exposed areas by laying a continuous cover of grass sod. Sod is useful for providing immediate cover in steep, critical areas and in areas unsuitable for seed. Sod must be rolled over after placement to ensure contact and then watered.

Sediment Barriers: Sediment barriers are used to decrease flow and capture sediment due to disturbed soil.

Silt Fence/Straw Bale Barrier: A silt fence is a temporary sediment barrier consisting of filter fabric buried, stretched and staked around the edge of the disturbed area or near a receiving water. Although not the preferred method, a bale of straw (don't undo the bale) or a pile of gravel can also be used instead of the filter fabric to reduce velocity and increase infiltration into the soil.

Pet Care & Animal Waste

Pet care

High concentrations of pets and other animals (ducks, geese) coupled with an urban environment (large amounts of pavement) can contribute a large amount of pollution to the river. This is because animal waste left on paved surfaces enter the river either directly or through storm drains. Through proper waste management and reducing the overabundance of geese and ducks, bacteria and nutrient pollution from this source can be greatly reduced.

Cleaning up after your pet is another way to help protect the Rouge River and be a responsible neighbor. Pet waste left on sidewalks, streets or yards contain numerous pollutants such as nutrients and bacteria. These pollutants can easily be washed into nearby storm drains and into the River. Discard your pet's waste by flushing it down the toilet or throwing it in the trash.

Other pet care tips:

- Wash your pet either in the house or the lawn. Don't allow the bath water to enter into the storm drain.
- Use non-toxic alternative to flea powders, if possible. After using a flea collar, dispose of the collar at a household hazardous waste collection site.

Clean up pet waste from both paved surfaces and lawns. Discard pet waste by flushing it down the toilet or throwing it in the trash.

Don't feed the ducks

Feeding the ducks near a calm body of water. It seems like a relaxing, harmless activity. However, did you know feeding the ducks is not healthy for the ducks or the river?

Feeding the ducks, geese and other waterfowl has made them lazy and dependent on humans. So instead of migrating south or continuing their flight throughout the area in search of food and shelter, waterfowl stick close to places where they are fed. As a result, many local parks and ponds are overrun with waterfowl (and duck and geese feces).

If you do have a lot of geese congregating in your area pond, plant taller grasses or bushes around the edge. The geese will seek other places where there is lawn to the water's edge.

Another problem is the type of food we feed geese and ducks. Just like humans need certain food in their diet (vegetables, fruits), ducks and geese need certain types of food (not bread). In addition, like pet waste, waterfowl waste contributes nutrient and bacteria pollution to the Rouge River.

Just remember, a sufficient amount of food already exists within a lake or river for native waterfowl. So, for the sake of the river and waterfowl . . . please don't feed the ducks.

Feeding ducks and geese is not healthy for the animals or the water quality of the surrounding rivers and ponds.

Household Hazardous Waste

Some products we use every day are "hazardous". If disposed of improperly, these products make their way to the Rouge River and kill surrounding plants and animals. A product is hazardous if it is:

Toxic

poisonous or capable of causing acute illness

Flammable

ignitable/burns easily

Corrosive

eats through other materials

Reactive

can possibly explode or react with other chemicals

Some products we use every day are "hazardous". A product may be hazardous if the label has a picture of a skull and cross bones, or if it contains the words WARNING, CAUTION, DANGER, or POISON.

Check the label to see if a product is hazardous. A product may also be hazardous if the label has a picture of a skull and cross bones or, if it contains the words **WARNING, CAUTION, DANGER, or POISON.**

Household hazardous waste tips

- Keep unused portions in their original containers with labels intact and readable.
- Store hazardous materials in a cool, dry place inaccessible to children or pets.
- Reduce your waste and save money by purchasing only materials you need and will use.
- Use products in accordance with the manufacturer's directions and follow all safe handling requirements.
- Let used solvents and paint thinners set for a while in a closed jar. The dirt and paints will settle to the bottom. The top portion can be reused. The amount of actual waste for disposal will be much less.
- Offer surplus portions of products that are usable and safely packaged to others, such as pesticides to nurseries, and paint to theater groups.
- Never pour motor oil, paints, or chemicals down storm drains or sinks.

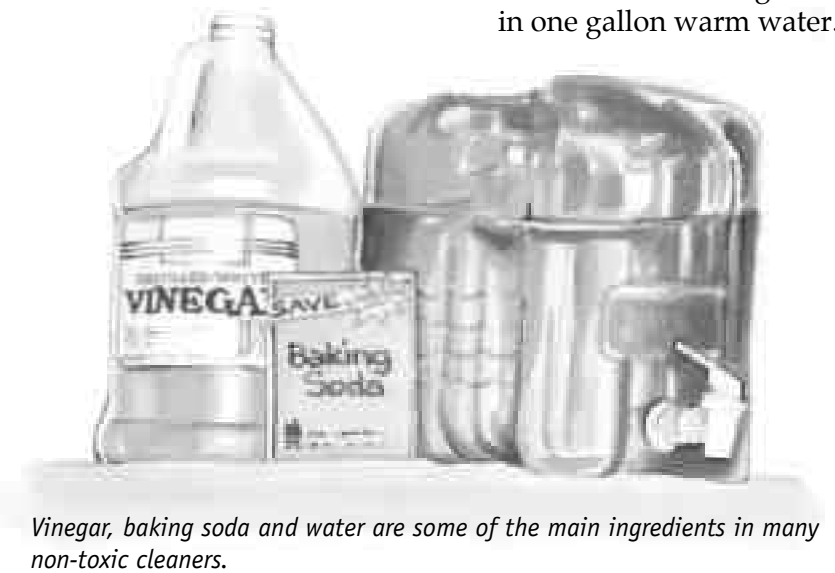
These household hazardous wastes should be recycled or taken to a household hazardous waste drop off site (see reverse side for locations).

- Reduce the amount of hazardous wastes you purchase and use non-toxic alternatives when you can. If a product cannot be used for its original purpose, then the material should be disposed of following the disposal methods listed in this brochure.

Non-Toxic Alternatives

Here are recipes for some Rouge-friendly cleaning concoctions. They work, they cost pennies per gallon, and they won't harm you or the environment.

- For an all purpose cleaner: mix a cup of vinegar in a pail of water.
- To disinfect, use one-half cup washing soda (sodium carbonate) dissolved in a gallon of hot water.
- Wash windows with one part vinegar to four parts water.
- To deodorize carpets, sprinkle with baking soda. Vacuum after 30 minutes.
- To polish furniture, use equal parts mineral oil and lemon oil.
- To clean floors, use 1/4 cup white vinegar, 1/4 cup washing soda (sodium carbonate not baking soda) in one gallon warm water.



Vinegar, baking soda and water are some of the main ingredients in many non-toxic cleaners.

Contacts for Household Hazardous Waste Collection Information

Allen Park	313-928-1400 ext. 253
Auburn Hills	248-391-3777
Beverly Hills	248-288-5153
Bingham Farms	248-644-0044
Birmingham	248-288-5153
Bloomfield Hills	248-644-1520
Bloomfield Twp	248-433-7706
Canton Township	313-326-3936
Commerce Twp	BFI-1-800-858-0089
Dearborn	313-943-2085
Dearborn Heights	313-277-7924
Detroit	313-923-2240
Ecorse	313-923-2240
Farmington Hills	248-473-9560
Farmington	248-473-7250
Franklin	248-626-9666
Garden City	734-525-8840
Highland Park	313-868-3035
Inkster	313-563-9773
Lathrup Village	248-288-5153
Livonia	734-466-2588
Lyon Twp	248-437-2240
Melvindale	313-381-2311
Northville Twp	248-348-5820
Northville	248-349-3271
Novi Twp	248-348-0365
Novi	248-208-2270
Oak Park	248-288-5153
Orchard Lake Village	248-682-2400
Plymouth	734-455-1392
Plymouth Twp	734-454-0530
Pontiac	248-857-5700
Redford Twp	313-387-2699
River Rouge	313-842-6482
Rochester Hills	248-656-4600
Romulus	313-942-7579
Salem Twp	734-971-7356
Southfield	248-354-9180
Superior Twp	734-971-7356
Troy	248-288-5153
Van Buren Twp	734-699-8926
Wayne	734-277-2332
West Bloomfield Twp	248-683-0876
Westland	734-467-3252
Wixom	248-624-0141
Ypsilanti Twp	734-971-7356

* Drop off site for Southeastern Oakland County Resource Recovery Authority (SOCRRA) communities by appointment only.

Household Hazardous Wastes and Disposal Methods

Pour small amounts down drain*

Put it in the trash

Recycle it

Take it to hazardous waste collection facility

* If connected to a sewer when disposing of materials in this way, please use reasonable judgement and dispose of small quantities (usually 1 pint or less) with plenty of water.

Kitchen

- Aerosol cans (empty)
- Aluminum cleaners
- Ammonia based cleaners
- Bug sprays
- Drain cleaners
- Floor care products
- Furniture polish
- Metal polish with solvent
- Window cleaner
- Oven cleaner (lye base)

Bathroom

- Alcohol based lotions (aftershaves, perfumes)
- Bathroom cleaners
- Depilatories
- Disinfectants
- Permanent lotions, hair relaxers
- Medicine (expired)
- Nail polish or remover (solidified)
- Toilet, tub and tile cleaners

Garage

- Antifreeze
- Auto body repair products
- Battery (lead acid)
- Brake fluid
- Car wax solvent
- Diesel fuel

Garage (continued)

- Fuel oil
- Gasoline
- Kerosene
- Metal polish with solvent
- Motor oils
- Other oils
- Transmission fluid
- Windshield washer solution

Workshop

- Paint brush cleaner with solvent
- Paint brush cleaner w/TSP
- Aerosol cans (empty)
- Glue (solvent based)
- Glue (water based)
- Paint: latex
- Paint: oil based, auto, model
- Paint thinner or stripper
- Primer
- Rust remover (w/phosphoric acid)
- Turpentine or varnish
- Wood preservative
- Garden Fertilizer
- Fungicide
- Herbicide
- Insecticide
- Weed killer

Miscellaneous

- Ammunition
- Artists' paints
- Dry cleaning solvents
- Fiberglass epoxy
- Gun cleaning solvents
- Lighter fluid
- Household batteries
- Moth balls
- Old fire alarms
- Photographic chemicals (unmixed)
- Photographic chemicals (mixed & properly diluted)
- Shoe polish
- Swimming pool acid

For more information contact:

Washtenaw County
(734) 971-7356

Wayne County
(313) 326-3936

Additional questions regarding household hazardous waste disposal can be directed to the Michigan Department of Environmental Quality, Waste Management Division, South-east Michigan District Office at (734) 953-1448.

Car Care and Maintenance

Vehicle Fluid and Repairing Vehicles

Vehicle fluids include any fluid normally used in a vehicle such as engine oil, transmission fluid, power steering fluid, brake fluid, hydraulic fluids and radiator fluid.

Many of these fluids can be hazardous in themselves, and may pick up contaminants during use in the vehicle. They can contaminate water supplies and kill fish and other aquatic life even in small quantities.

Many fluids found in automobiles are hazardous and can contaminate water supplies and kill fish, even in small quantities.

If You Spill...

- Pour kitty litter, sawdust or cornmeal on spills to absorb the spilled materials. Sweep up absorbants after a few hours.
- If it's a large spill (over 1 gallon of absorbant), take the material to a household hazardous waste disposal center or event.
- If it's a small spill, place the used absorbants in a strong plastic bag in the trash.

Motor oil & antifreeze tips

It doesn't take much oil to seriously damage the environment. Oil can enter the Rouge River when someone dumps directly into the river or into a nearby storm drain. Remember. What is dumped into storm drains could end up in the Rouge River!

- With more than 25% of all car owners changing their own oil, it is important for them to dispose of it properly. When you change your oil, put used oil into a sturdy container, label it and take it to a local oil recycling location.
- Treat antifreeze the same way. Antifreeze is also dangerous to the environment. It contains ingredients that are poisonous to people, fish and wildlife. Many cats and dogs have died after drinking sweet-tasting puddles of antifreeze found on driveways, ditches or near storm drains.

Did you know four quarts of oil — the amount it takes to fill your automobile's engine — can form an 8 acre oil slick in the Rouge?

For information regarding collection centers, contact your local community, or:

Washtenaw County
(734) 971-7356

Wayne County
(313) 326-3936

Repair tips

- Keep your vehicle well-tuned and fix leaks from your automobile as soon as possible.
- Recycle all used fluids. Under no circumstances should any vehicle fluid be poured down any drain or dumped in the trash, or dumped onto the ground.
- Place a drip pan under your work area.
- Only repair vehicles in areas where leaks or spills cannot flow into the storm drain. Do not let leaks or spills fall directly on the ground. A good solution is to take your car to a mechanic.
- Do not mix waste oil with gasoline, solvents or other liquids before recycling. These items cannot be recycled if they are "contaminated" by each other.
- Change vehicle fluids indoors when ever possible. If it must be done out doors, stay clear of any storm drains or sanitary sewers.
- Inspect vehicles regularly for leaking oil and fluids.
- Minimize spills and drips: use spigots, drip pans and funnels when transferring fluids.

Washing Your Automobile

Believe it or not, there are some small changes you can make when washing your car to be Rouge Friendly. If you wash it yourself:

- It is best to go to a commercial car wash that uses water efficiently and disposes of runoff properly.
- Wash car on the lawn instead of the driveway to reduce runoff to the street or storm sewer.
- Use non-phosphate biodegradable detergents and mild soaps (see car soap alternatives in section below).
- Use water from a bucket instead of the hose to save water.
- Wash one section of the car at a time and rinse it quickly using a pistol grip nozzle with high pressure and low volume.

Wash your car on the lawn instead of the driveway to reduce runoff to the street or storm sewer.

Recipes for your automobile

Car soap

1/4 cup vegetable oil-based liquid soap
Warm water
Mix ingredients in pail.

Car wax

1 cup linseed oil
4 tbsp. carnauba wax (available at auto supply stores)
2 tbsp. beeswax
1/2 cup vinegar
Put ingredients in top half of a double-boiler or saucepan. Heat slowly until wax has melted. Stir and pour into a heat resistant container. After wax has solidified, rub it on the car with a lint-free cloth. Saturate a corner of a cotton rag with vinegar and polish the wax to a deep shine.

Vinyl Cleaner

1/4 cup washing soda
1 cup boiling water
(sodium carbonate)
Dissolve washing soda in boiling water. Apply with sponge and wipe off with a damp cloth.

Home Improvement

Home improvement projects require special care to prevent water quality problems in the Rouge River. Paint use, paint removal and driveway, walkway and patio installation and repair are some activities where household hazardous materials have the potential to negatively affect the river, aquatic organisms and surrounding wildlife. The following suggestions will help you decrease the amount of pollution coming from your neighborhood.

Choose water-based paints over oil-based paints. Look for "latex" or "clean up with water" on the label (they are generally less toxic than oil-based paints).

Painting

Paint Use and Clean Up

Paints and associated materials such as thinners, rags and brushes should never make their way to a stream, river or lake. All paints, solvents, and adhesives contain chemicals that are harmful to aquatic animals and other wildlife within our water system.

- Choose water-based paints over oil-based paints. Look for "latex" or "clean up with water" on the label (they are generally less toxic than oil-based paints).
- Buy only what you are going to use.
- Do not use paints over 15 years old — they may contain toxic levels of lead.
- After getting as much water-based paint off brushes and out of paint trays as possible, wash off the excess paint in an indoor sink, not outdoors.
- Paint out oil-based paint brushes as much as possible and then use thinners and solvents. Dispose of excess paint and thinner through your local household hazardous waste disposal program (see section of household hazardous wastes).
- When they are thoroughly dry, empty paint cans, spent brushes, rags and drop cloths may be disposed of in the trash. Leave the lids off the paint cans so the refuse collector can see that they are empty.
- Dispose empty aerosol paint cans as household hazardous waste.

Paint Removal

- When pressure-washing old exterior house paint, prevent or minimize wash water from discharging into a storm drain.
- Chemical paint stripping residue, including saturated rags, is a hazardous waste and should be taken to a household hazardous waste collection site.
- Lead paint chips are a hazardous waste and should be swept up and taken to your local household hazardous waste collection site.

Reuse/Recycle

- Reuse paint thinner or cleaning solvents. Set aside in a closed jar to settle out paint particles, then pour off clear liquid for future use. Dispose of paint and thinner residue through your local household hazardous waste disposal program.
- Empty, dry paint cans and empty aerosols can also be recycled in some communities.
- Save unused paint for future paint jobs or find someone who can use it. Donate it to an organization, such as a theatre group, that needs contributions.

Install and repair driveways, walkways and patios

- Set up and operate small mixers on heavy tarps or drop cloths.
- Never wash excess material from bricklaying or patio or driveway construction into a storm drain.
- Collect and reuse excess gravel and sand.
- Don't use your hose as a broom! Never hose down driveways, sidewalks, or streets into storm drains.
- Apply driveway sealant when no rain is forecast. Sweep first to prepare and carefully follow the directions.
- Try to minimize the use of impervious surfaces, and slope such surfaces toward vegetated areas.
(see landscape section.)

Septic System Maintenance

This section has been adapted from materials developed by the Rouge RAP Advisory Council On-site Septic Subcommittee, which contains representatives from Oakland, Wayne and Washtenaw County Health Departments.

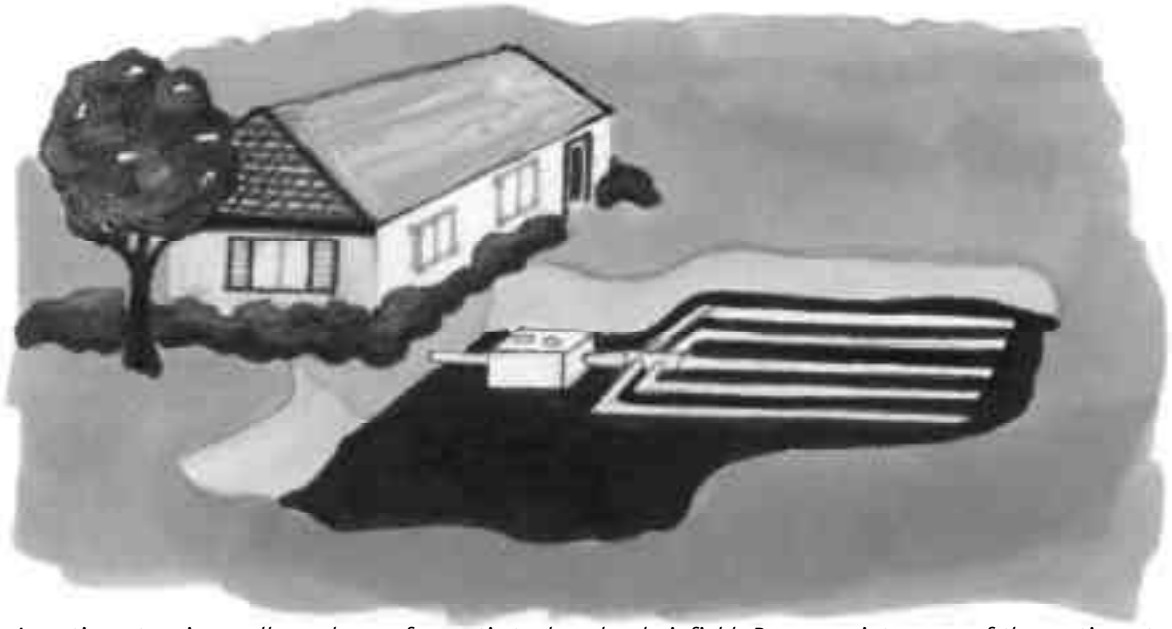
Septic systems are waste water treatment systems that use septic tanks and drainfields to dispose of sewage in soil. They are typically used in rural or large lot settings where a sanitary sewer is not available.

According to the Michigan State University Extension Service and local health departments, when a septic system is correctly located, adequately designed, carefully installed and properly managed, you will have a waste disposal system that is simple, economical, effective, safe and environmentally sensitive.

A septic system usually is made up of a septic tank and a drainfield. The septic tank is usually made of reinforced concrete, is buried and watertight. This tank receives untreated household waste. The drain field usually consists of a series of perforated pipes (pipes with holes in them), which distribute the liquid from the septic tank to the surrounding soil.

Although even the best designed and installed system eventually fail, proper maintenance will ensure a longer lasting waste disposal system.

A failure of a septic system can cause serious problems. Sewage can pond on the ground near the drainfield or back up into buildings. Animals and people may become ill from contact with these discharges. Pollution from failing septic systems can contaminate ditches, creeks and shallow drinking water supplies. In addition to public health concerns, there are costly repair bills to repair or replace the system. Normal use of the system is interrupted while the system is uncovered for repairs or replacement.



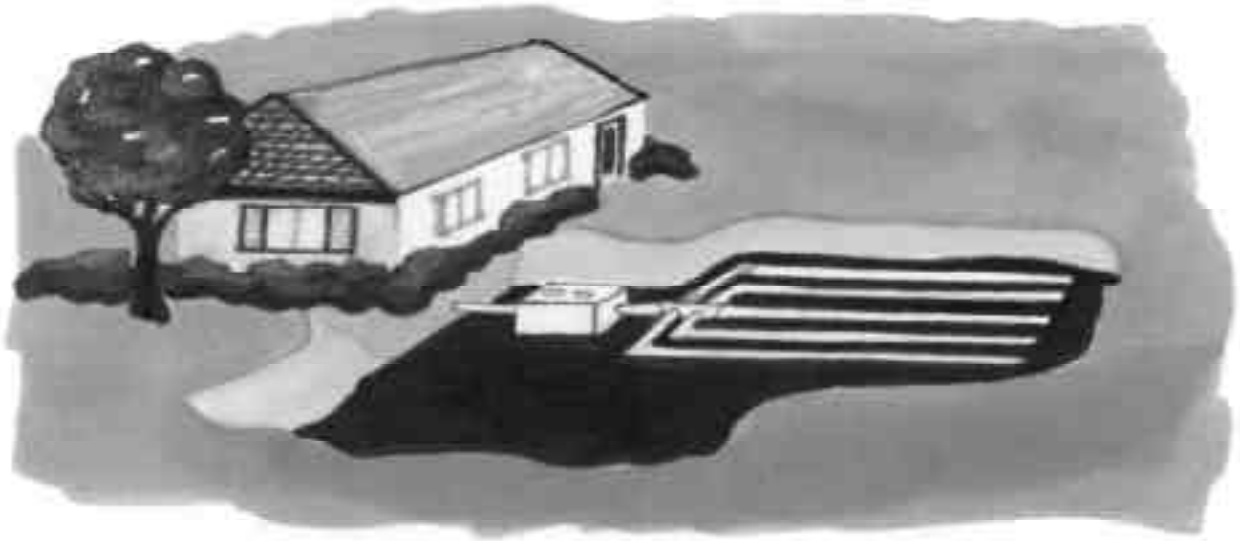
A septic system is usually made up of a septic tank and a drainfield. Proper maintenance of the septic system will enhance lifespan of the disposal system.

How the septic system works

Waste material from the house enters the septic tank where:

- Heavier solids settle to the bottom and form a sludge layer.
- Lighter wastes such as oil and grease rise to the top and form a scum layer.
- Between these two layers is liquid wastewater.

When waste enters the tank, bacteria begin to break down the solid materials. This break down reduces solids, but also leaves a residue behind in the tank. As time passes, this residue builds up, and must be removed to prevent it from entering the drainfield and clogging the system. The center liquid layer flows slowly from the tank into the drainfield. Perforated pipes allow the liquid to be equally distributed in a gravel-filled disposal field. Once the liquid reaches the disposal field, it soaks into the soil. The soil then acts as the final filter for treatment of waste received from the septic system.



Do's and don'ts if you are on a septic system

Do's

- Connect laundry and kitchen water to septic tank.
- Have your septic tank pumped out by a licensed operator every 2-3 years.
- Have the operator check to be sure there is a tee or baffle on the outlet of the septic tank. The baffle stops the scum from floating into the disposal field.
- Check with the health department if you are having problems. They can assist with operation, maintenance and design questions.
- Learn the location of your septic tank, drainfield and well. Keep a sketch of it handy with your maintenance record for service visits. Obtain a copy of your septic permit and map inspectrin, if possible.

- Divert other sources of water, like roof drains, house footing drains, and sump pumps to lawn areas away from the septic system. Excessive water floods the system, keeping the soil in the drainfield saturated and unable to adequately treat the wastewater.
- Take leftover hazardous household chemicals to your approved hazardous waste collection center for disposal. Use bleach disinfectants and toilet bowl cleaners sparingly and in accordance with product labels.
- Cut the grass over the disposal field. Grass cut around 2-3 inches increases plant activity called evapotranspiration. This process removes nutrients from the disposal field through the root system, and increases evaporation.

Limit water entering your tank:

- Use water-saving faucets, showers, and toilets.
- Prevent basement sump pump connection to tank.
- Drain appliances one at a time.
- Spread clothes-washing over the entire week and avoid half-loads.
- Prevent roof, foundation, driveway, basement drainage and watersoftener discharge from entering the tank or disposal field area.
- Minimize amount of water used for bathing and dish washing.
- Fix all faucet and toilet float valve leaks.
- Check toilets for leaks at least once a year by putting a few drops of food coloring into the toilet tank. If colored water appears in the toilet bowl, you have a leaking toilet.

Don'ts

- Don't go down into a septic tank. Toxic gases are produced by the natural treatment processes in septic tanks and can kill humans in minutes. Extreme care should be taken when inspecting a septic tank, even when just looking in the lid opening.
- Don't allow heavy vehicles to drive over or park on the drainfield.
- Don't plant trees or shrubs on the drainfield. The roots from the plants could damage the system.
- Don't cover the drainfield with a hard surface such as concrete, asphalt above ground pools or decks. The area should have only a grass cover.
- Don't repair your septic system without checking with the health department to see if you need a permit.
- Don't overuse a kitchen garbage disposal unit. Heavy use adds large quantities of solids and shortens the time between septic tank pumpings.
- Don't use commercial septic tank additives. These products usually do not help and some may hurt your system in the long run.
- Don't use your toilet like a trash can or poison your septic system and the groundwater by pouring harmful chemicals and cleansers down the drain. Harsh chemicals can kill the beneficial bacteria that treat your wastewater.

Do Not Flush Or Wash Down The Drain!

• coffee	• grinds	• dental floss
• fat	• kitty litter	• disposable diapers
• grease or oil	• paper towels	• cigarette butts
• condoms	• sanitary napkins/tampons	

or hazardous chemicals, such as:

• paints	• varnishes	• paint thinners
• pesticides	• waste	• photographic solutions
• oils	• old gasoline	• other strong chemicals

These items can overtax or destroy the biological digestion taking place within your system.

Signs that your system is failing

- Sewage backup in drains or toilets.
- Slow flushing toilets, sinks or drains.
- Visible liquid on the surface of the ground near the septic system. It may or may not have an odor associated with it.
- Lush green grass over the drainfield, even during dry weather. Often, this indicates that an excessive amount of liquid from the system is moving up through the soil, instead of downward, as it should. While some upward movement of liquid from the drainfield is good, too much could indicate major problems.
- Build-up of aquatic weeds or algae in lakes or ponds adjacent to your home. This may indicate that nutrient-rich septic system waste is leaching into the surface water.
- Unpleasant odors around your house.

What to do if your system is failing

If your system exhibits one or more of the failure indicators, contact your county health official for assistance in assessing the situation. Some times the system may be able to be repaired without complete replacement. Sewage contains harmful bacteria, so keep pets and children away from the failure. Limit water use until repairs can be made. If a new system or repairs are needed, a permit is often required from your local health department.

Remember!
+ adequate design
+ proper installation
+ water conservation
+ regular maintenance

= a longer life for your sewage disposal system.

For additional information about your septic system and its condition, contact:

Detroit City
Health Department
Herman Kiefer Health Complex, Bldg. 4
1151 Taylor
Detroit, MI 48202
313-876-4519

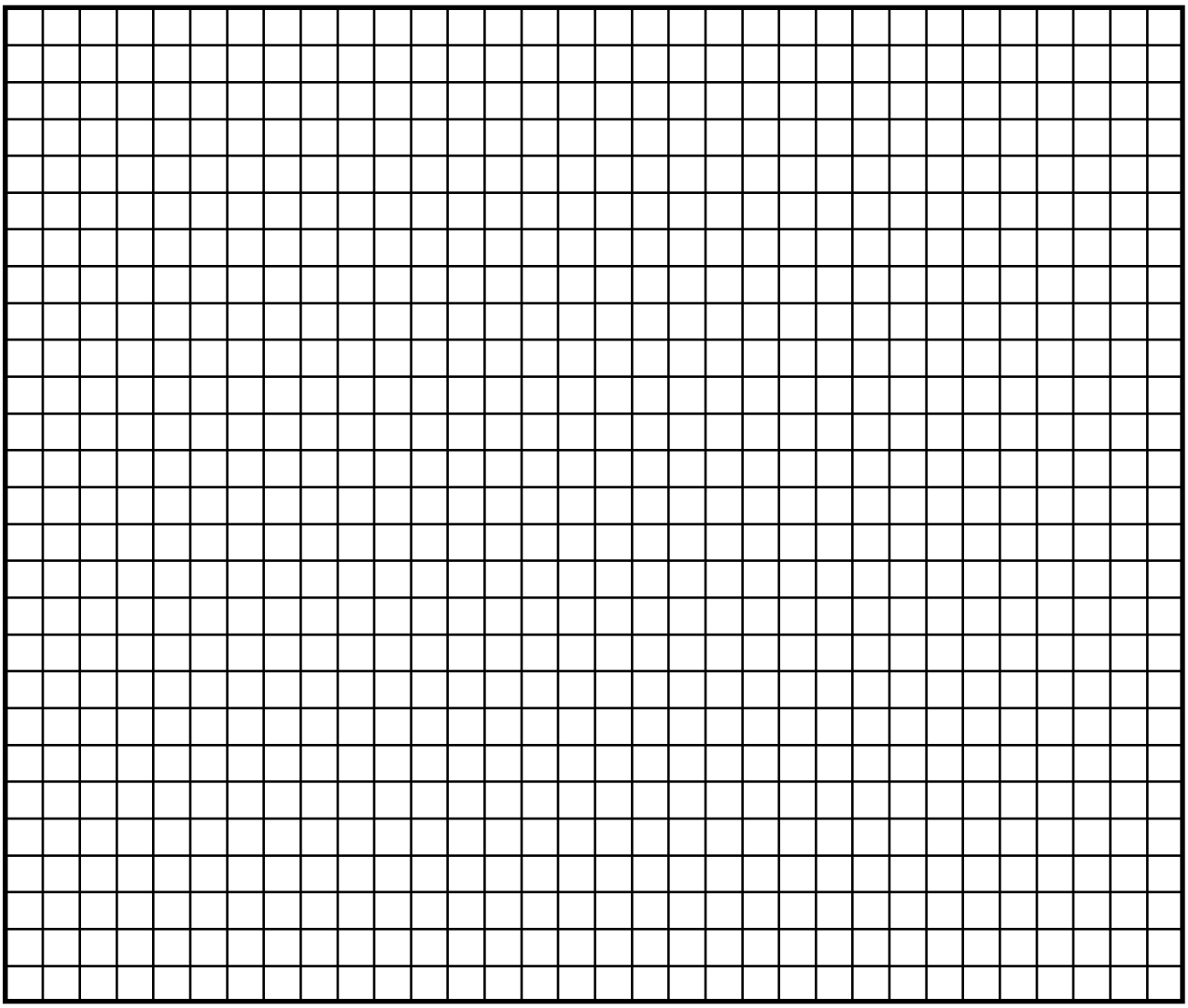
Oakland County
Health Division
1200 N. Telegraph Rd.
Pontiac, MI 48053
810 -858-1320,
plus offices in Southfield and Walled Lake

Washtenaw County
Environmental Health
4101 Washtenaw Ave. Ann Arbor, MI 48107-8645
313-971-4542

Wayne County
Environmental Health
5454 S. Venoy
Wayne, MI 48184
313-326-4920

Septic System Layout

Use this chart to draw your septic system, showing the relative location of your septic system components (tank, disposal field) in relation to your house and well.



Preventive Maintenance Record

Use the preventive maintenance record to keep track of system repairs, tank pumping and other work. Remember, have your tank pumped out by a licensed operator every 2-3 years.

Date	Work Done	Firm Doing Work	Phone Number	Cost

Downspout Disconnection and Installation

Downspouts carry storm water from your roof away from your house. Directing storm water from downspouts away from paved areas and to vegetated areas gives the water a chance to enter the ground, instead of running into sanitary sewers or storm sewers. Following are two scenarios for how downspouts add pollution to the river:

- *In combined sewer areas*, the excess water entering the system contributes to combined sewer overflows, where a mixture of raw sewage and storm water enter the river untreated. (For more information on combined sewer systems see page 3).
- *In separated sewer areas*, the excess water entering the system adds additional pollutants to the river. Also, the excess water increases flooding and erosion of our creeks, rivers and low lying areas during major storm events.

By keeping storm water out of sanitary or storm sewers:

- You can reduce sewage overflows into the Rouge River.
- You can reduce flooding of the Rouge River.
- You can reduce basement flooding from sanitary sewer backups
- You can reduce basement flooding from leaking downspout connections.
- You can lower sewer usage rates paid by the community and you.
- You can reduce water use for landscaping, saving you money.

Disconnect downspouts and direct storm water away from the foundation of your house.

Other Downspout Tips

- A concrete splash pad may be needed to deflect the water where it spills out of the downspout onto the ground.
- Another option is to have the excess water flow into a rain barrel where it can be used to water your plants through out the yard. Be sure the barrel is covered to reduce mosquitos and provide safety to children.
- Check to see if there is a local ordinance before you disconnect.

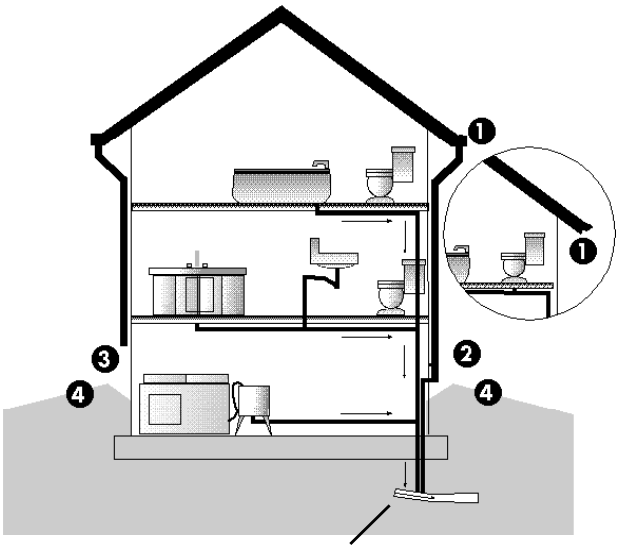
How Does Your Roof Drainage Work?

Rain water that lands on your roof is collected in gutters and is discharged to the ground by downspouts. This rain water should be directed across vegetated areas where it can soak in.

Incorrect roof drainage

Incorrect roof drainage may involve any of four problems:

1. Lack of gutters at bottom edge of roof.
2. Downspouts that drain directly into the sanitary sewer line.
3. Downspouts that drain straight down and do not direct water away from the house.
4. Grading in the yard that directs water toward the house.

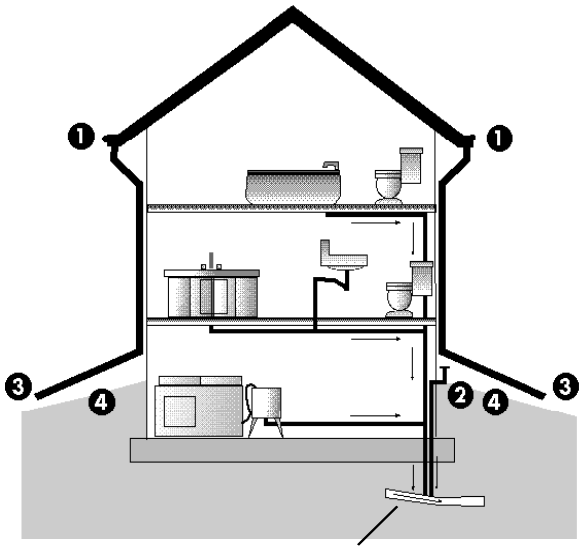


Drainline to the sanitary sewer

Correct roof drainage

You may need to correct one or all of the roof drainage problems listed above. A correct roof drainage system should include:

1. Gutters on the bottom edges of your roof.
2. A plug in the sanitary sewer line where the down spout had been connected.
3. Downspout extensions that drain roof water away from your house.
4. Grading that provides gradual slope away from the house.



Source: adapted from Western Lake Superior Sanitary District

Drainline to the sanitary sewer

Water Conservation

Although there is not a water shortage in the Rouge River Watershed, water conservation is a good practice and will help the Rouge, especially in combined sewer area. In a combined system, it is important to practice water conservation because it is the excess water in the sewer system that causes a combined sewer overflow (where raw sewage and storm water is released into the river untreated).

Don't waste water. Turn off the faucet when you are not using it!

Quick tips for water-savers:

- Check for leaks by monitoring your water meter before and after a two hour period where no water is used. If the readings are not identical, a leak is evident.
- Replace conventional shower heads with ultra low-flow models to reduce water flow by as much as 25 percent. Shortening your shower can save up to 10 gallons of water per minute.
- Don't waste water. As much as three gallons per minute can escape each time you allow water to run while brushing your teeth or shaving. Turn it off when your not using it!
- Install a toilet 'dam' (available at home improvement stores) or another displacement device in your toilet tank to save water each time you flush.

Collect rain water to water your plants.

- Don't turn on an automatic sprinkler system simply to satisfy a few thirsty plants. Hand water them or install a drip system available at home improvement stores.
- Improve your aim. Adjust sprinkler heads to avoid watering driveways and concrete.
- Don't over water your lawn. See the watering tips in the lawn maintenence for further information.
- Collect rainwater to water your plants.
- Develop your own stream protection or enhancement projects.

What Else Can You Do?

Spread the Word

The first step is to incorporate some of these practices from this guidebook into your daily life. If you want to go beyond this, you can spread the word. Share this handbook, or the practices in this book, with your neighbors.

Join an Organization

Friends of the Rouge is a grassroots organization with over 800 members who are dedicated to restoring the Rouge River. They participate in a variety of special community projects and an annual Rouge Rescue cleanup, which has removed tons of natural and man-made debris from the river. They also sponsor an education program to teach elementary through high school students about water quality sampling and the importance of the Rouge River.

Participate in Friends of the Rouge Activities:

Rouge Riverwatch is an opportunity for you and your group to take year-round responsibility for the health and appearance of a section of the Rouge River or one of the streams that flow into it. As a member of the Rouge Riverwatch Program, you and your group can:

- Conduct cleanups of the stream and its banks
- Monitor the health of your stream
- Learn how to prevent water pollution
- Develop your own stream protection or enhancement projects

Storm Drain Stenciling is one way concerned people can inform others about pollution from storm drains. Various types of pollutants, such as oil, grease and antifreeze are poured down storm drains, which directly dump into the river. Many times this pollution comes from individuals who do not know that storm drains lead directly to the river. Stenciling storm drains with the words "Dump No Waste — Drains to Rouge River" informs people about this pollution source.

For information on the Rouge Riverwatch, Storm Drain Stenciling, or Friends of the Rouge, call: Jim Graham, Executive Director (313) 961-4050.

Another way to help restore the Rouge River is to join an organization or participate in their activities, such as the annual Rouge Rescue.

Rouge RAP Advisory Council (RRAC) RRAC represents all parties interested in the Rouge River Remedial Action Plan (RAP), which is the long-term clean up plan for the Rouge River. This group is responsible for advising the Michigan Department of Environmental Quality on the update and implementation of the Rouge RAP. Five subcommittees address issues of concern: nonpoint source pollution (such as storm water runoff), on-site sewage disposal, public education, contaminated sites and headwaters issues. Citizens and students are included in RRAC's membership, and anyone may participate in the RRAC's meetings or its subcommittees.

For information on the Rouge RAP Advisory Council, call: Cathy Bean, Rouge RAP Coordinator (313) 953-1441.

Be Active in Your Community

In addition to joining an organization and incorporating this guidebook into your daily life, you can also encourage your community to help in the restoration of the Rouge River. Below are a few suggestions on how your community can become involved in the restoration process.

Erosion

Erosion from construction sites and new development is a major source of pollution to the Rouge. Although county government usually has the authority to control erosion, local governments and citizens can help prevent this type of pollution. Encourage your local officials to better monitor and control soil erosion on new developments where large parcels of land are left exposed for periods longer than 2-3 months. If you notice large amounts or erosion from a site, contact your local municipality.

Pet Care and Animal Waste

Encourage local officials to use signage around local ponds and rivers asking residents not to feed the ducks and geese.

Household Hazardous Waste

If your community doesn't have a household hazardous waste drop-off site, contact your local officials and tell them you would like your community to start a household hazardous waste program. Enlist your neighbors! The more interested residents are in initiating a program, the more likely it will be started.

Car Care

Encourage local service stations to accept used motor oil and antifreeze from area residents.

All Valvoline Instant Oil Change locations will accept used oil. For the nearest location, call 1-800-FASTCHANGE.

For additional information about the Rouge River,
call the Rouge River Information Line at (888) 223-2363.

THE ROUGE RIVER PROJECT
A WORLD CLASS EFFORT
BRINGING OUR RIVER BACK TO LIFE

Friends of the ROUGE

ROUGE RIVER RAP
REMEDIAL ACTION PLAN

Thanks for caring enough to repair and protect the Rouge River!

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